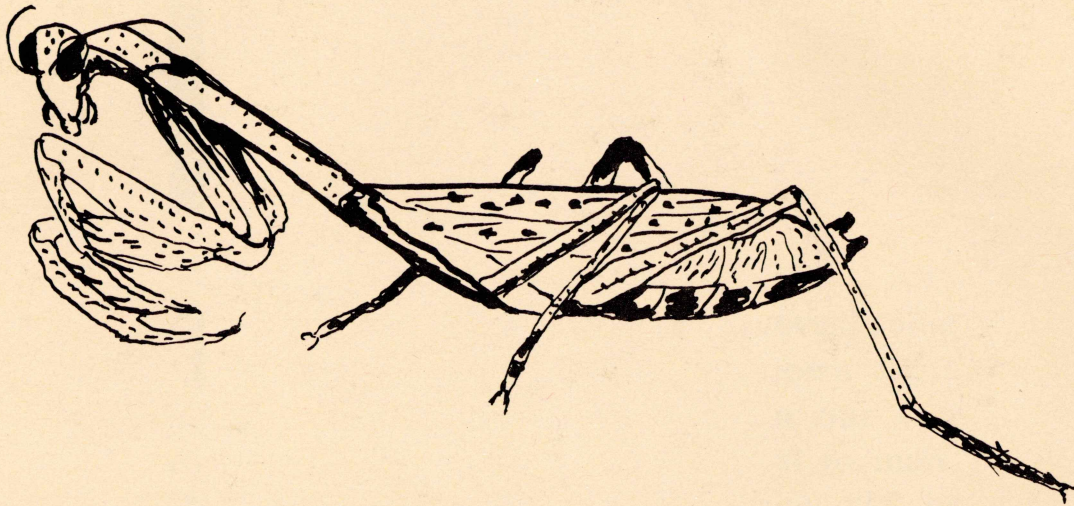


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# Insect Tales



By Ramon D. Gass  
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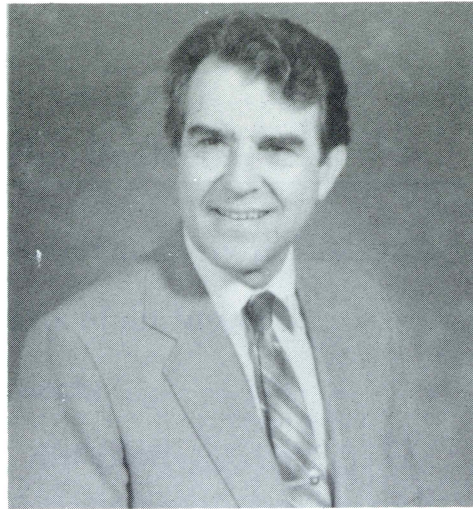


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The purpose of this booklet is to reveal some interesting and perhaps unknown facts about insects that we often see in our surroundings and which may be helpful to man. The text is presented in first person, "I," to make each insect seem more real to you.

You may not understand some words used in this booklet. You can find these words explained at the end of the booklet. All insects have a Latin name. These names have been included in the last page of the booklet.

There is a picture of each insect in this book. Get your crayons ready to color the insects which are described.

*Ramon D. Gass*

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*Sketches by Ramon D. Gass*  
*Edited by Ruth Schuller*



# Some Facts About Insects

**What is an insect?** An insect is an animal that has six legs, a head, thorax and abdomen (see drawing page 2). Its skeleton is on the outside of its body. It breathes through small holes on each side of its abdomen. Special insects, such as the dragonfly nymph, breathe in other ways.

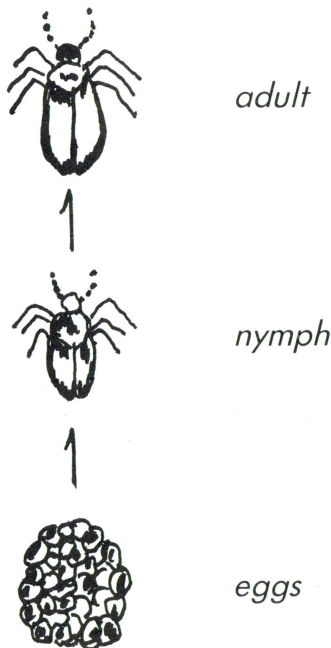
**Where do insects live?** Many insects live in the soil while others live in water. Insects can be found on humans, and on wild and domestic animals. Certain insects live in green, live trees, while others live in dry, seasoned wood. Insects such as ants and certain beetles live in rotten wood.

Many insects spend part of their lives in water and part in the air. Others spend part of their lives in soil and the remainder in the air.

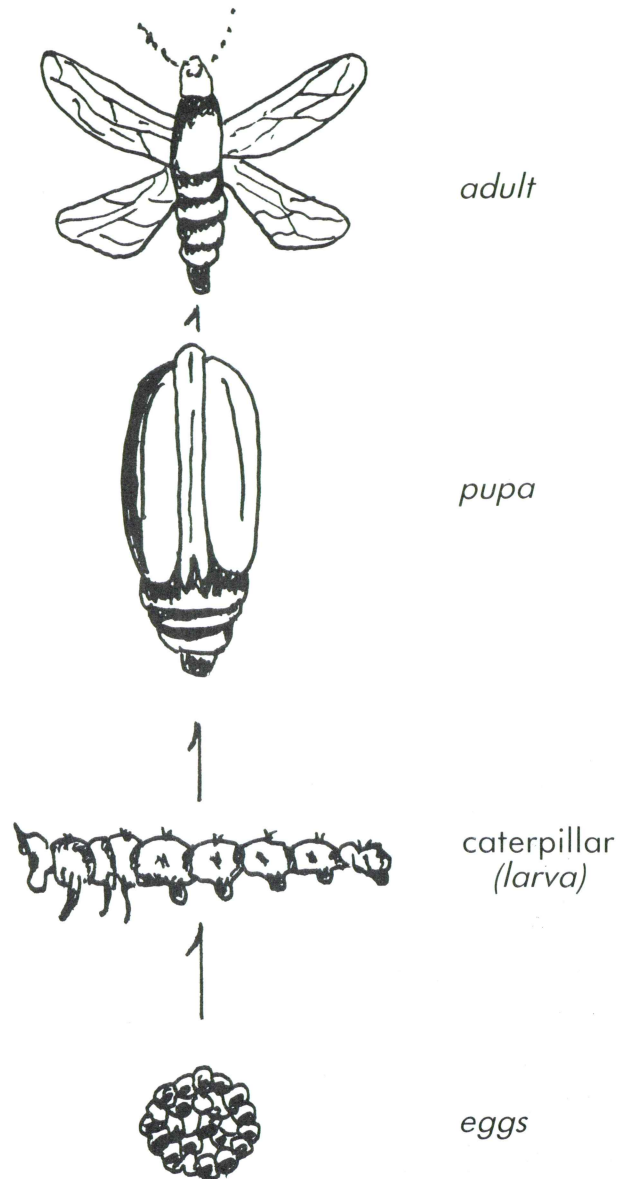
**Where and how do insects overwinter?** Some insects overwinter as adults in buildings, in compost piles or in the plants that they fed upon the previous summer. Some insects overwinter in the egg stage, while others overwinter as the larva (caterpillar) or pupa on or in stems of plants.

**How do insects develop?** Insects develop in two basic ways. There are at least 20 major orders or classifications of insects. Insects in each order develop a little differently. The two ways that insects develop are:

**Incomplete Metamorphosis:** The egg hatches to become a "small" adult called a nymph. The nymph will grow into an adult insect (see below).



**Complete Metamorphosis:** The egg hatches to become a larva or caterpillar. When the larva has completed its feeding, it transforms to the pupa. When the pupa matures, the adult insect emerges (see below).



Something to think about: What is an example of incomplete metamorphosis? Complete metamorphosis?

**What do insects eat?** Insects eat plant fruits, leaves, stems, food stuff, fabric, organic matter in soil, blood of wild and domestic animals and humans and other insects. Insects feed on wood in storage and use. There are some insects that feed on insects in collections.

**What eats insects?** Other insects, bats, animals and birds feed on insects. People in primitive tribes on islands in the Pacific Ocean eat insects. Spiders eat insects on a regular basis. The purple martin can eat 12,000 mosquitoes in one day.

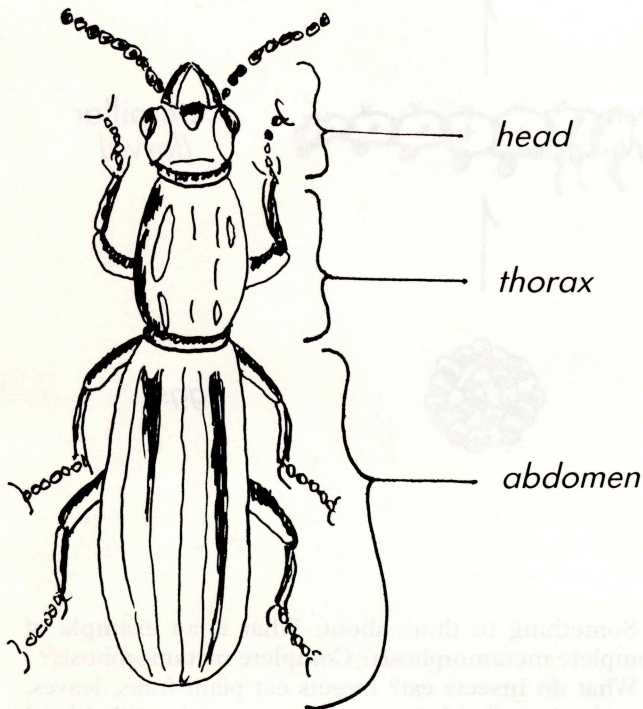


## Parts of an Insect

I have talked about the outside of an insect, but what about its inside? Insects have very small stomachs, intestines, means to breathe and brains. The brain is not like a human brain because it is very small and does not have the power to think like we humans. The insect uses its brain to survive from one generation to the next. An insect is guided to a tree or plant because it is hungry and feeds upon the plant. Certain insects feed on dying plants such as trees that are dying.

Insects are attracted to troubled trees because they send out a noise or an odor which signals the insect to attack. Certain insects are attracted to only one kind of plant. Other insects will feed on several kinds of plant.

If an insect stings a human it is because it is protecting itself or its hive. Insects do things by instinct, as many other animals do. Insects do not think as humans do.



Ant Lion  
nymph



conical pit

## Ant Lion

"When I have finished feeding upon insects in late autumn, I pupate in the soil in a cocoon of sand and silk. In spring, you might see small, conical pits in dry sand or silt, under roof edges or under rock ledges along rock bluffs. This tiny pit, two inches wide and one or two inches deep is my home. Little is known of my life secrets. I lay eggs in litter. After the eggs hatch, I will eventually build a pit. I live at the bottom of the pit. I cover myself with sand or silt and wait for an unsuspecting insect to step over the edge and slide down to the bottom, where I throw up a shower of dust to confuse the insect further.

"With my sickle-like jaws I feed on those unfortunates. My teeth are large as is my appetite. I am helpful to man because I eat harmful insects. As an adult, I look somewhat like a witch doctor or damsel fly.

"When my young reach adulthood in late summer they will lay eggs."



# The Dragonfly

"During cold days in winter, if you are lucky and look very carefully, you can see me as a nymph or immature, lying quietly along the edge of a pond or along a river.

"Fossil forms of my ancestors have been found that date 250 million years ago when my wing spread was 27 inches! Today my wing spread might be 3¼ inches.

"In the air I flit excitedly as if I have nowhere to go. People call me a dragonfly, witch doctor or darning needle, all names that describe my appearance.

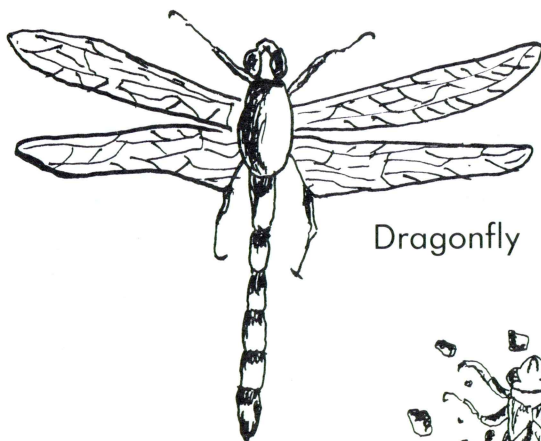
"I have a long, straight body about three inches long and four large, clear wings with many veins. I do not sting or bite man. When I find a prey, I grasp it with my legs and cradle it in basket fashion. I eat a variety of insects. If my home territory is along a stream, I will move along it, searching for midges, mosquitoes, other dragonflies, bees and butterflies.

"My life is rather simple. Females lay eggs in water or on plant stems above or below the water line. After the eggs hatch, the nymphs live in water for two or four years.

"I have a strange and fascinating way of moving along the bottom of my aquatic home. I draw in water through the tip of my abdomen, then push it out rapidly. By doing this I am able to take oxygen from the water to breathe and also to move—a form of jet propulsion.

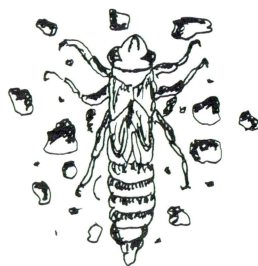
"After my time in the water is over, I crawl up a plant stem such as a cattail. After I rest awhile, my skin splits on the top of my body and I poke through and crawl out. It will be at least one to two hours before my wings are fully expanded, my body parts are hardened and my color is complete.

"I am quite content because there is little stress in my life. First, I live comfortably feeding and resting at the bottom of a pond, stream or lake. As an adult I flit aimlessly in the air searching for prey. The only time I am in great danger is when I might become fish food for some large trout or be devoured by a bird."

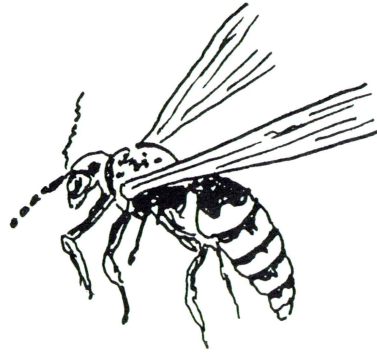


adult

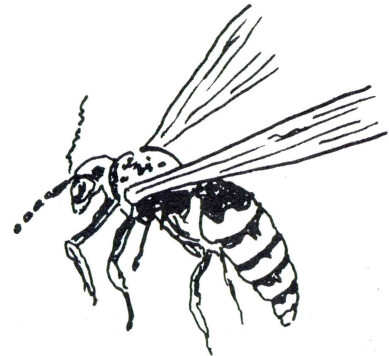
Dragonfly



nymph



Cicada Killer Wasp



## Cicada Killer Wasp

"You will first see me circling about small holes in the lawn in July and August. I am about one to one-and-one-half inches long and am light brown with yellow bands on my body. I earn my name from the insect that I use in my nest, the annual cicada. I will also use grasshoppers and crickets to place in my nest in the soil.

"In early summer, I dig a hole in the soil. I prefer loose soil if I can find it. Later, I find an annual cicada, and I sting and paralyze it. After I have moved the paralyzed insect to my nest, I will lay eggs in its body. When the eggs hatch, they will feed on the body of the paralyzed insect.

"Some people fear me, however, since I feed on other insects, I am very helpful to man and should not be disturbed. Very little is known about my life."



## Lady Beetle

"Farmers like me because I feed on insects that damage agricultural crops. You might see me in early October on high places. I gather together with thousands of my kind to find a safe place to overwinter or hibernate. At first, I crawl on rocks, grass and tree and shrub stems. When it turns colder in late October I will crawl in a deep crevice or hole with my kind where the temperature will not drop low enough to freeze. I will withstand freezing rain, sleet and snow until next spring.

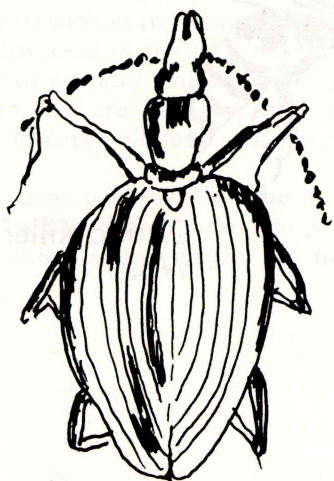
"As time passes and spring arrives, I begin stirring. It is not until late spring that I move from my winter protection to the open air above ground. Soon, I will lay eggs on needles or leaves of trees where I will spend my active life. After my eggs hatch, the larvae begin feeding on soft-bodied insects. It is especially during this time that people should not spray chemicals on trees where I live.

"I look like a tiny black alligator and have a healthy appetite.

"Aphids, scales, and spider mites are my table fare. After time, I am ready to move to my next life stage called the pupa. During this time I will hang from a needle or leaf by my tail. Eventually I break from my pupal skin and become a full-fledged lady beetle, light orange with dark spots.

"As an adult, I feed on damaging insects. When summer arrives I might wait quietly in litter during the day and feed at night.

"In autumn, I return to that beautiful high point in the forest where once again I will seek refuge during winter."



Ground  
Beetle

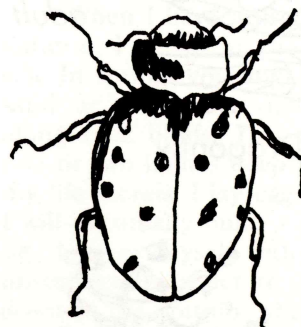
## Ground Beetle

"In winter, I spend my time in soil, under stones, logs, leaves, bark or debris as a caterpillar or adult. In spring you might see me on sidewalks or in your basement or house looking for insects to eat and a cool place to stay.

"I have many relatives of different sizes and colors. We all are beneficial in that we eat insects. My front wings are heavy and cover my hind wings when I am at rest. Most front wings are metallic color (green, purple, blue, brown) and are grooved with tiny pits (punctures).

"Whenever leaf-feeding insects are active in spring, I am around to feed on them. You might see many of my kind on leaves, tree trunks and on the ground searching for caterpillars. I am especially attracted to bright lights, where I feed on insects. This means that I am a help to man and should not be feared or killed. If you pick me up, I will give off a funny odor.

"The largest and the most brilliantly colored of my kind feed on gypsy moth larvae, a serious defoliator of forest trees and other plants in the northeastern United States. It is here that my kind grow in large numbers because we have so many caterpillars to eat. To separate me from other beetles first look at my head. You will notice that the antennae (feelers) begin at a point on my head above my mouth parts."



adult



larva

Lady Beetle



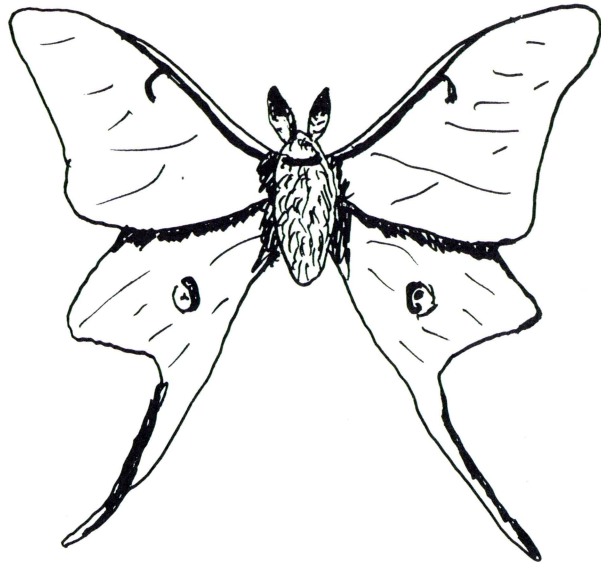
# Monarch Butterfly

"My story begins in a huge, secluded valley about 100 miles from Mexico City, Mexico. I and my own kind number over 100 million where we live away from harsh northern winters. It is here that I will have several families. My grandchildren will return to the eastern United States in the late spring and lay their eggs on the common milkweed. When the eggs hatch, the caterpillars will feed on the leaves.

"As a caterpillar, I am yellowish-green banded with black, with two thread-like, fleshy structures at either end of my body. My chrysalis is pale green spotted with gold. As an adult, I am reddish-brown with wings bordered in black. There are two rows of small white spots on the edge of my wings.

"When I have stopped feeding in late summer, I will pupate in the form of a chrysalis. In a few weeks, I will emerge from the chrysalis and fly in large numbers over several weeks back to the pine-covered mountains and valleys in Mexico. You can see me fluttering over roads and highways in mid-October.

"My relatives west of the Rocky Mountains overwinter near Monterey, California. This autumn, be on the lookout for me as I cross highways on my journey south."



Luna Moth

## Luna Moth

"I spend the winter in a cocoon formed in a leaf on the ground or on a tree twig. In spring, I emerge from the cocoon as a large, light green moth. I have long tails on my hind wings and the front part of my front wings, and a dark brown border on the upper edge of my wings. In the larval stage I feed on walnut, hickory and other tree leaves. I am about 4 inches long when I have completed feeding.

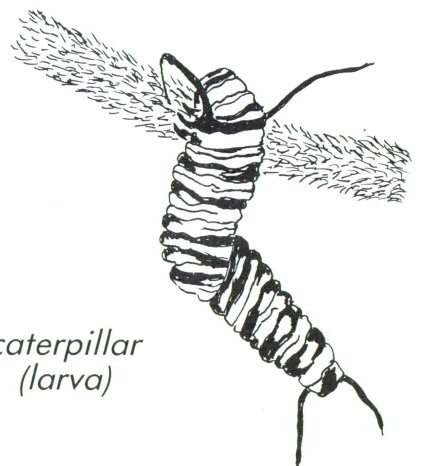
"I am usually attracted to lights. Maybe that is why they call me luna, Latin for moon. In late summer, when my feeding is complete, I find a leaf and spin a cocoon in which I will overwinter.

"Sometimes wasps will lay their eggs in me while I am in the larval or cocoon stage. If they do, I will not become an adult next spring. Children often find me and bring me to school to show their teacher and classmates. Sometimes they keep me and watch me; other times they draw or paint pictures of me. I am such a beautiful moth!"



adult

Monarch



caterpillar  
(larva)

## Walking Stick

"I am at home in hardwood forests in Missouri, Iowa, Minnesota and Illinois. Since I feed on oak and hickory leaves, you might see me in the forest in July, August and September. By the time I begin feeding on leaves, trees have slowed in growth for the season."

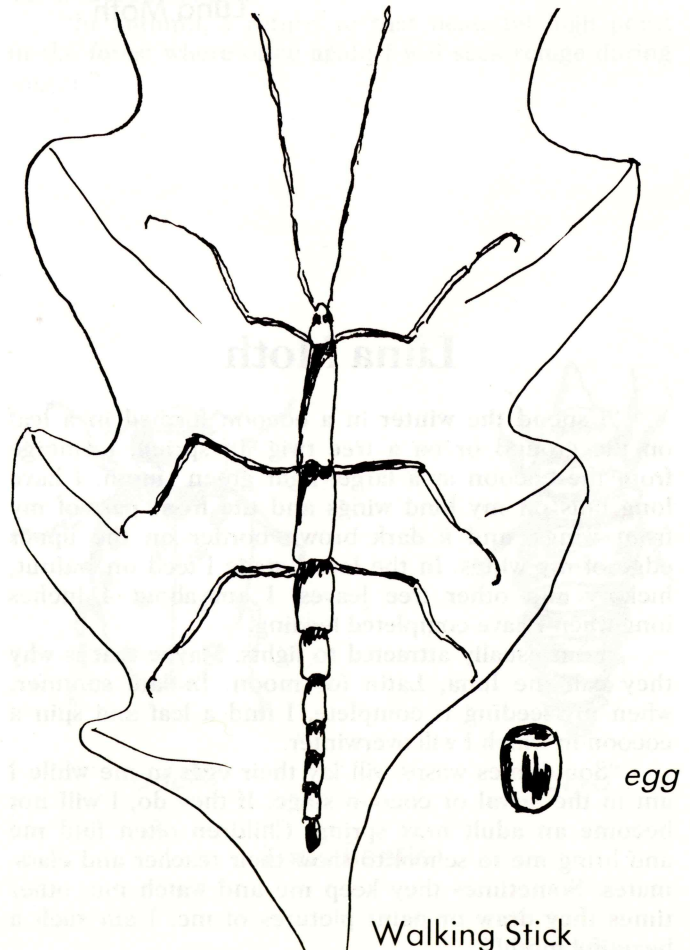
"I overwinter in the egg stage between leaves on the forest floor. My eggs are small, barrel-shaped and black and white. I hatch in midsummer and become a nymph. My metamorphosis is incomplete. As I feed during my youth, I grow to about 4 or 5 inches long. When I am young, I am green, but as an adult I am light brown to gray. I earned my name from looking like a stick. I blend in well with trees and shrubs."

"I lay eggs in the forest in late summer or early autumn. The tiny eggs dropping onto the leaves on the forest floor sound like hail."

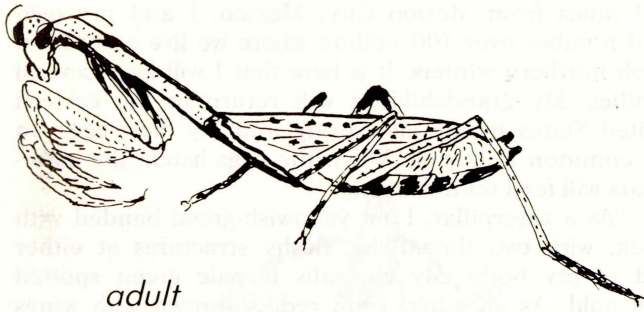
"I feed on leaves and might cause trees to weaken, but I also have some benefits. Shredded leaves and droppings fall to the forest floor, fertilizing and composting the soil."

"I do not bite or sting humans, and I am food for birds and other animals. My eggs are places where other insects lay their eggs, so sometimes my eggs do not hatch the first year they are laid. This is the reason my kind appear in larger numbers during odd-numbered years."

"As with most insects, I play a special role in nature. Most of the time man benefits from the presence of insects."

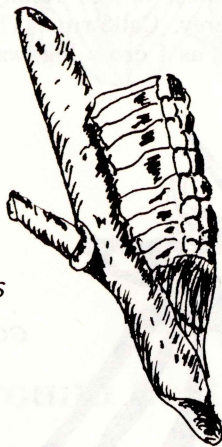


Walking Stick



adult

## Praying Mantis



egg mass

## Praying Mantis

"In autumn I lay a mass of tightly packed eggs on a twig. I spread a shiny varnish-like coating on the mass to protect it from winter cold."

"Winter has been harsh and cold. My egg mass has been coated with ice three times. Now, warm spring rains are falling. Evenings are very pleasant. When days are longer and warmer my eggs will hatch. There might be 50 to 80 of them in one mass. Given a chance, they will feed on each other after they hatch. They are beneficial because they feed on insects that damage trees or shrubs."

"When they hatch, they are called nymphs, and look very much like the adult that they will be later in summer."

"When one thinks about it, I am a very strange looking insect. Some people have kept me as a pet to feed on mealy bugs and mites on house plants."

"When at rest, and looking for insects to eat, I seem to be in a praying position with my front legs held forward. This is how I earned my name. I move slowly, but when I spot my prey, I thrust my front legs forward with lightning speed."



## Some Final Thoughts

As you have learned from this booklet, some insects are good for and some are damaging to crops, trees, shrubs and other plants. Man controls the damaging insects either chemically or biologically.

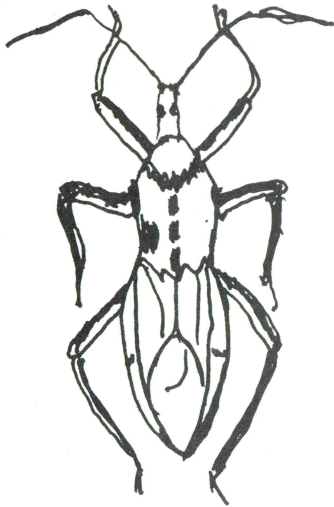
Chemicals, called insecticides, might pollute the environment or be toxic to people or beneficial insects. They should be used cautiously.

Biological control is when good insects are used to control damaging insects. The good lay eggs in the eggs, pupa or adult of the damaging insects. The eggs hatch and kill the damaging insects and keep their numbers under control.

Where possible, biological control is the best way to control insects. However, insecticides must be used sometimes.

\*\*\*\*\*

Insect collecting can be fun. To learn more about collecting insects contact your school, city or regional library. Books about insects can be purchased from your local bookstore.



Wheel Bug

### Wheel Bug

"In autumn my mother lays eggs close together on a bark surface. I spend the winter in the egg stage. When days become warm, I hatch from the egg and become a nymph. My metamorphosis is simple or incomplete. At this stage, I am red and black and very tiny.

"As I grow older and feed on many soft-bodied insects, I grow larger and my bite hurts people. In fact, my bite is usually worse than a bee or wasp sting. Because I eat insects, I am a friend to man. I should not be feared or disturbed.

"When I reach adulthood, I am from one to 1½ inches long, and am gray with a long beak or face which contains my needle-like mouth parts. I have a small part of a wheel-like structure on my back or thorax. That is how I got my name. I move about, using my four powerful wings, to search for prey.

"In autumn I lay a mass of 60 to 80 eggs on tree bark where my offspring will overwinter. Then the cycle is complete."



## Some Words Used In This Booklet

1. **Aquatic insect**—an insect which spends part or all of its life in the water.
2. **Beneficial insect**—an insect that helps man control insects harmful to crops, trees, shrubs, etc.
3. **Chrysalis**—the pupa of a butterfly.
4. **Cocoon**—a silken case inside which the pupa is formed.
5. **Complete metamorphosis**—the egg hatches to become a larva or caterpillar. When the larva has completed its feeding, it transforms to the pupa. When the pupa matures, the adult insect emerges.
6. **Conical**—cone shaped.
7. **Damaging insect**—an insect that causes an unsightly appearance, ruins the value of a crop; generally causes economic loss to trees, shrubs, lawn, field crop, food or fabric.
8. **Defoliator**—a larva or adult insect that feeds on leaves or needles of a tree or shrub.
9. **Estivate**—ways an insect spends hot summer quietly, as if asleep.
10. **Head—thorax—abdomen**—main parts of an insect (see diagram page 2).
11. **Hibernate**—ways an insect spends winter quietly, as if asleep.
12. **Immature**—the nymph or caterpillar/larval stage of an insect.
13. **Incomplete metamorphosis**—the egg hatches to become a "small" adult called a nymph. The nymph grows into an adult insect.
14. **Insecticide**—any chemical used to kill insects or to protect any area from them.
15. **Mass**—used to describe a collection of insect eggs placed in different shapes.
16. **Metamorphosis**—ways an insect passes from egg to adult. See complete and incomplete metamorphosis.
17. **Moult**—immature insects—caterpillar or nymph must moult or shed their skin, or else die. Some insects shed their skin four, five or six times as an immature before they pupate.
18. **Nymph**—immature or young insect with incomplete metamorphosis.
19. **Overwinter**—to pass the winter. Insects overwinter as adults in protected places or as a pupa in the egg stage.
20. **Order**—a large group of insects with like characteristics.
21. **Paralyze**—to make numb, but yet live.
22. **Pupa**—a stage of change for an insect between immature and adult. Usually an inactive stage.
23. **Scout**—move quickly along the bottom of a pond or stream.

## Scientific Names of Insects Used In Text

1. **Ant Lion** *Myrmeleon immaculatus* (DeGeer)
2. **Cicada Killer Wasp** *Sphecius speciosus* (Drury)
3. **Dragonfly** *Anax junius* (Drury)
4. **Ground Beetle** *Calosoma scrutator* (Fabricius)
5. **Lady Beetle**, Coccinellidae, family name
6. **Luna Moth** *Actias Luna* (Linn.)
7. **Monarch Butterfly** *Danaus plexippus* (Linn.)
8. **Praying Mantis** *Stagmomantis carolina* (Johannsen)
9. **Walking Stick** *Diaperomera femorata* (Say)
10. **Wheel Bug** *Arilus cristatus* (Linn.)



